

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012476**Date Inspected:** 08-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2130**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor (AB/F) personnel at the E1/E2 field splice:

A). Field Splice E1 to E2.

The QAI observed the Flux Cored Arc Welding (FCAW-G) process of the longitudinal plate stiffener identified as Weld Number (WN): 1E-2E-D-S8. The welding was performed by the welding personnel James Zhen ID-6001 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3010-1 Rev. 0. The WPS was also used by the AB/F Enterprises Quality Control (QC) Inspector Bernie Docena to perform QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the longitudinal stiffener field splice. The QAI observed the QC inspector verifying the welding parameters and were noted as follows: 252 amps, 23.3 volts and a travel speed measured at 236 mm per minute with the calculated Heat Input (HI) noted as 1.4 kJ/mm. The QC inspector also performed the visual weld inspection of the longitudinal plate stiffeners identified as D-S1, D-S2, D-S3 and D-S4. At the conclusion of the inspection no rejectable discontinuities were noted by the QC inspector and the QAI concurs with the QC inspector's assessment. The QAI also observed the CJP groove welding of the bottom plate splice identified as WN: 1E-2E-D, Weld Segment D19. The welding was performed by the welder Songtao Huang ID-3794 utilizing the FCAW-G process as per the WPS identified as ABF-WPS-D15-3040B-1 Rev. 0. The QC inspector also used the WPS to perform QC verification of the DCEP welding parameters which were observed and noted as follows: 236 amps, 22.7 volts with a travel speed measured at 228 mm per minute and the HI calculated at 1.4 kJ/mm. The welding of the bottom plate splice was completed at approximately 1400 hours and the monitoring of the Post

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Weld Heat Treatment (PWHT) process was completed at 1700 hours. The surface temperatures were also verified by the QC inspector and were noted as follows: the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

The QAI also observed the AB/F personnel removing the temporary High Strength Bolts (HSB) and installing the galvanizing HSB at the longitudinal U-Ribs located at the E1 to E2 deck plate field splice. The HSB installation appeared to comply with the contract specifications. Also during this shift, the QAI observed welding personnel Rory Hogan and Jeremy Dolman preparing the welding equipment and the associated welding accessories for the FCAW-G groove welding of the side plate field splices identified as WN's: 1E-2E-C and 1E-2E-E.

Later in the shift, at approximately 1330 hours, the QAI observed the Ultrasonic Testing (UT) technician Steve McConnell perform testing on the longitudinal stiffener plate field splices identified as D-S1, D-S2, D-S3 and D-S4. The QAI observed the Mr. McConnell performing the required longitudinal and shear wave scanning technique. The testing was performed utilizing a USM 35, manufactured by Krautkramer, a 1" diameter and a .75 x .75 rectangular transducers. At the conclusion of the testing no rejectable discontinuities were noted by the QC technician. Mr McConnell utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 during the testing of the plate stiffeners. The QAI also observed the Magnetic Particle Testing (MPT) performed by the QC technician James Cunningham. At the conclusion of the testing there were no rejectable indications noted by the QC inspector. Mr. Cunningham utilized the AC/DC Yoke manufactured by Parker Probe/ Model No. DA-400S and the MPT procedure identified as SE-MT-CT-D1.5-100 Rev. 4. The above Non-Destructive Testing (NDT) was completed by QC during this shift.

Observation and Verification Summary

The QA inspector observed the FCAW-G of the E1/E2 field splice utilizing the WPS's as noted above which appeared to be posted at the weld station. The welding parameters and preheat temperatures were verified and noted utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized during the groove welding appeared to be an ESAB manufactured product identified as ESAB Dual Shield 70 Ultra Plus with a size of 1.4mm which appeared to comply with the AWS Electrode Specification AWS A5.20 and the AWS Classification E71T-1M. The welding, QC inspection and UT performed on this shift was not completed except as noted above and appeared to be in general compliance with the contract documents. The QAI randomly verified the QC inspection, the welding parameters and surface temperatures utilizing various inspection equipment and gages, a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

See digital photographs located on Page 3 of this report in regards to the work observed during this shift.

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Summary of Conversations:

There were no pertinent conversations discussed in regards to the project except as noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer